# Running the Data Acquisition

## Run 03

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# Master Clock

1. Make sure you are on the two-panel display, labeled "phoncsb".

2. Click on the Gnome paw on the lower left hand corner to open the ONCS Window. This is the menu of all the functions we will use for the data acquisition.

3. Choose the "Master Clock" gui

4. Select the type of clock depending on what we have to do:

BEAM is COGGED – SL will tell you to run the DAQ.

- Select the "Blue Clock" tab. The window should then say "Clock Source is Blue Clock."

WHEN SL SAYS THAT MCR WILL DUMP THE BEAM

- Run "Master Clock" gui and select the "Internal Clock" tab. The window should then say "Clock Source is Internal Clock".
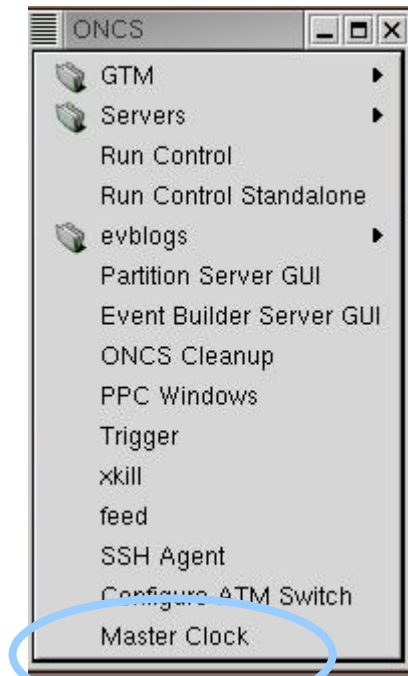
# Global Level 1 (GL1) Trigger

Go to ONCS Window Menu

- Run "Trigger" gui.

- On GL1 Tab, select "Run Config. Script".  A smaller window menu will pop up asking you to select the type of trigger.  This depends on the clock source as follows:

  – If Blue Clock :  Choose "BigRun3", then "Load"
    OR

  – If Internal Clock:  Choose the configuration script depending on subsystem requests- ask SL, then "Load"

- Select BBC Tab

  – Select "Run Config. Script".

  – For either blue or internal clocks, select "PP" (for BBLL1).
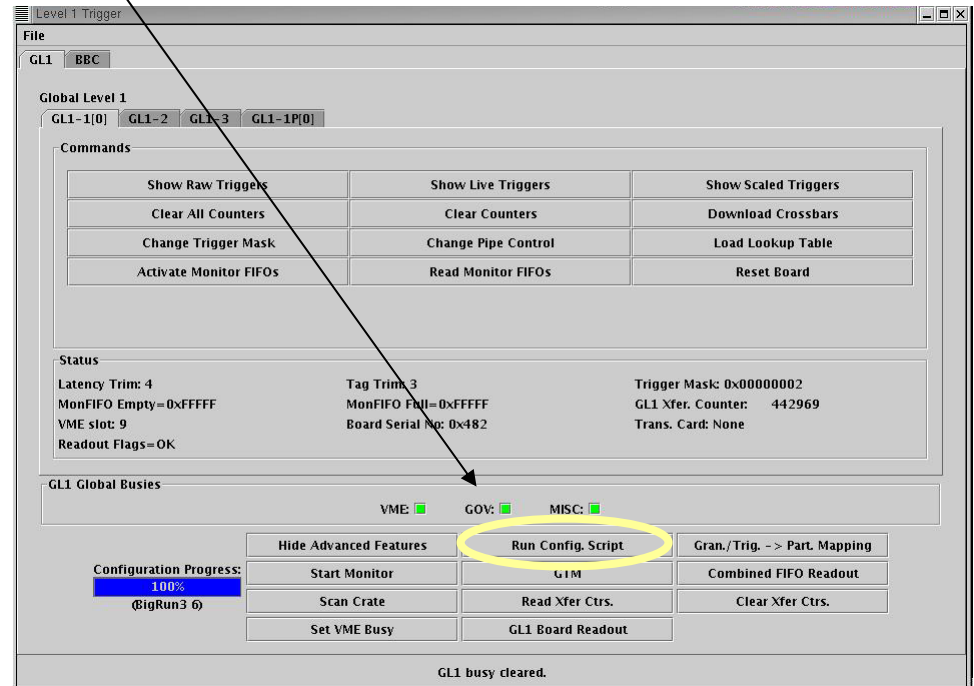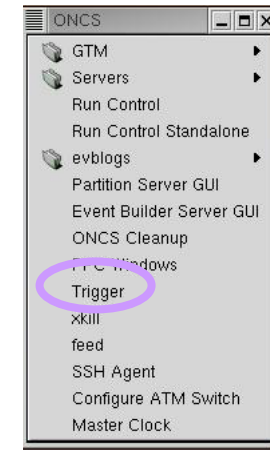
# Parallel Clock Fix on the FEED Gui

1. On the ONCS Menu, select "feed". Feed stand for "Front End Electronics Defibrillator." This initializes the FEMs so that the phase-lock loops are in phase in the DLINKs.

2. We've changed the clock, so select "Parallel Clock Fix."

3. After the green progress bar finishes, a green status report will appear below the "Parallel Clock Fix" button.

4. If there is a problem with this initialization for a given subsystem, its status indicator will be red. If this is the case, discuss this with the SL if this is the normal state for the detector. If not, push the button for the given subsystem to initialize again. If it continues to fail check with SA2 about LV status and consult SL
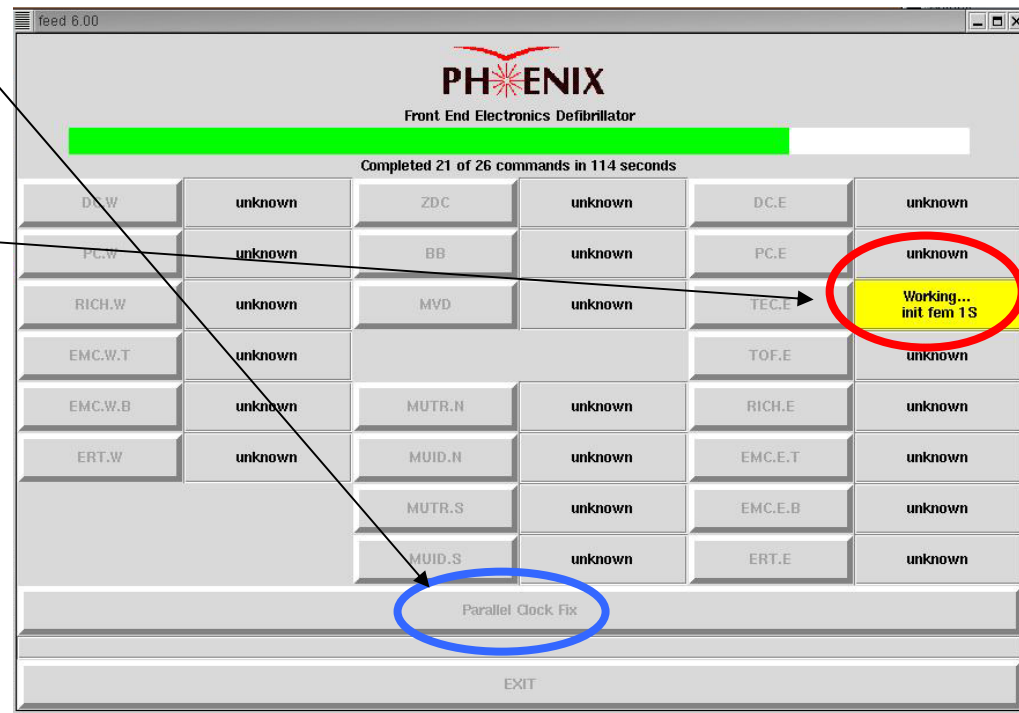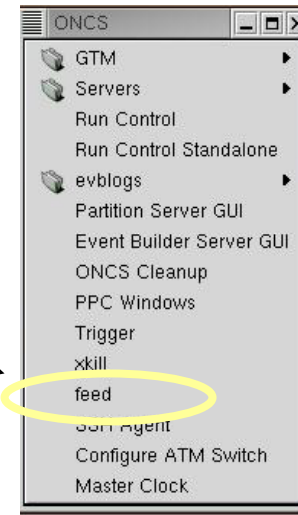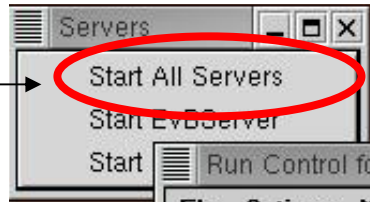
# Monitoring the Crates on PHONCS C

- Go to the computer labeled "PHONCS C".

- Select "PPC Windows" on the ONCS menu.

- The green windows are the GTM crates.

- The pink windows are GL1 and BBC LL1 crates.

- The blue windows are the iocondev crates for the granules.

- These windows are useful for monitoring during the download step in run control (error messages or "hanging" prompts will occur if there are problems during run control setup).
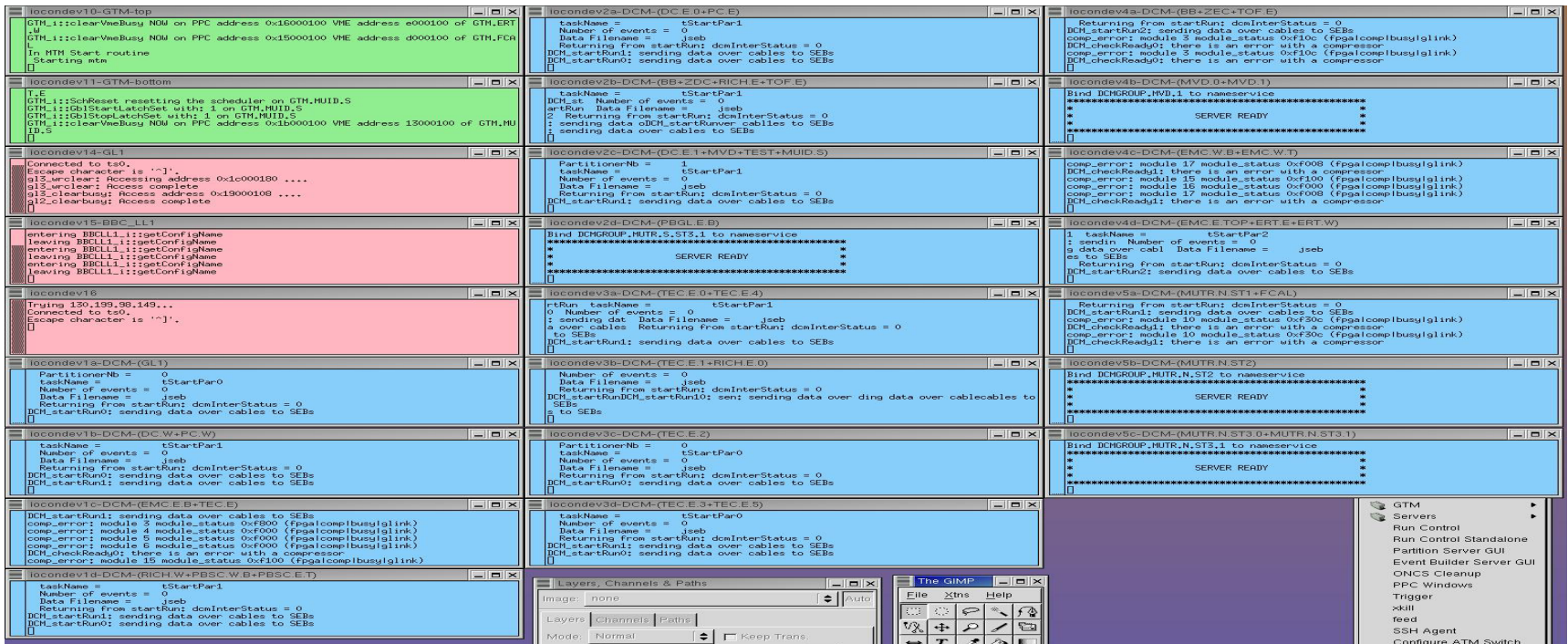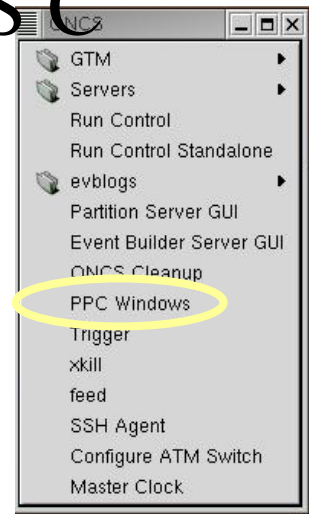
# Monitoring the Crates on PHONCS C cont

- If "hanging" prompts occur (i.e. memory allocation error) then reboot the relevant iocondev by pressing Ctrl-x

- If rebooting does not help or if the error "event should be 1 instead of 0" appears contact the daq expert (the power might need to be recycled)
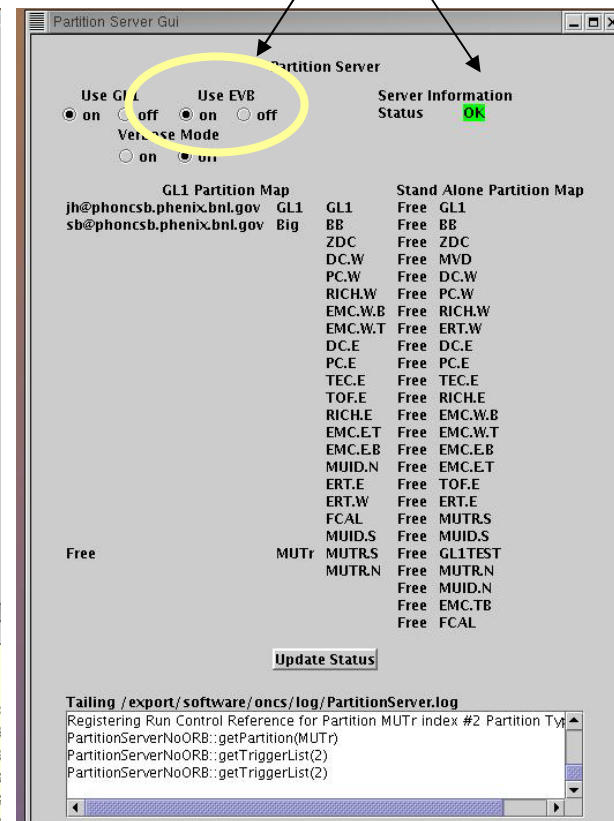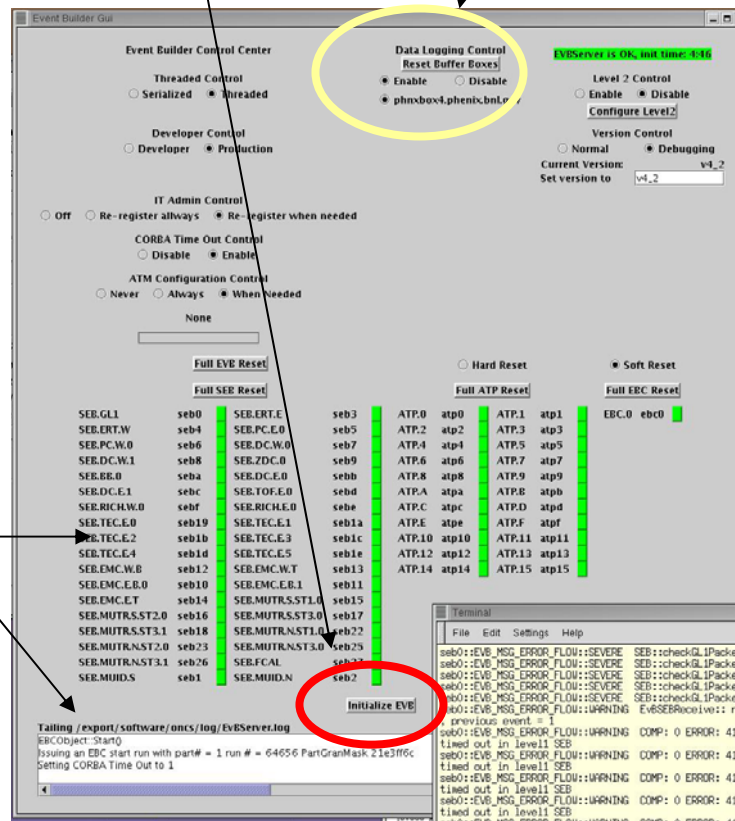
# Starting the Servers

**ONCS**
- GTM ►
- Servers ►
- Run Control
- Run Control Standalone
- evblogs ►
- Partition Server GUI
- Event Builder Server GUI
- ONCS Cleanup
- PPC Windows
- Trigger
- xkill
- feed
- SSH Agent
- Configure ATM Switch
- Master Clock

**Servers**
- Start All Servers
- Start EvBServer
- Start | Run Control fo

Partition Server: select "on" in "Use EvB".

Event Builder: choose "Enable" in "Data Logging Control." Then choose "Initialize EvB".

Any errors? The "ok" status button may turn red and error messages will appear in the white scroll bar.
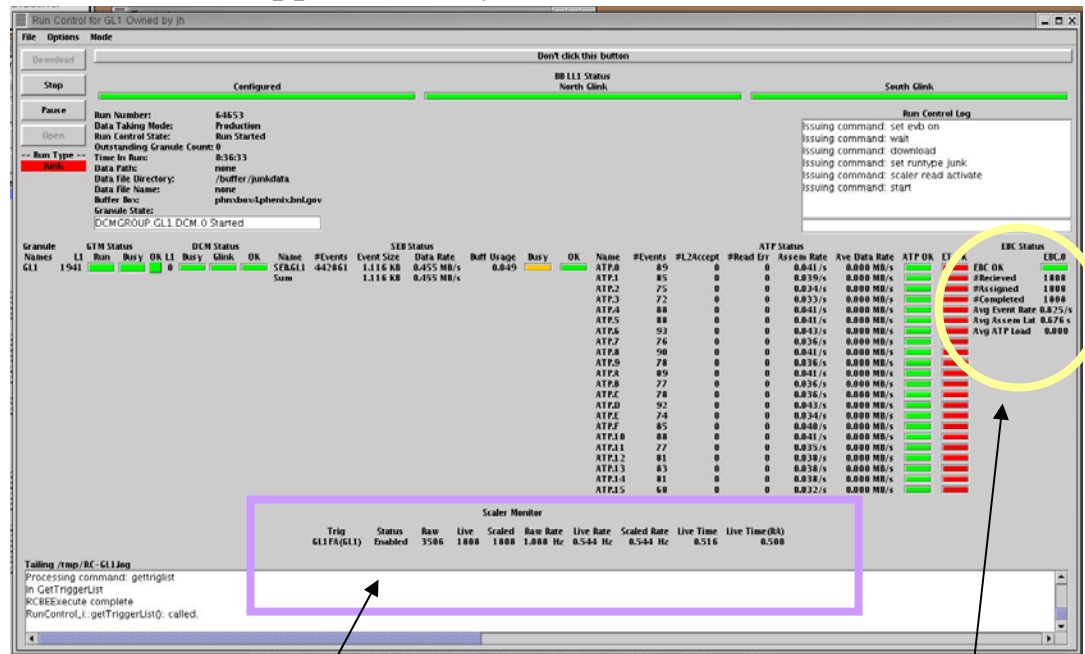
Any errors in the Event Builder? The seb/atp buttons may turn red during run (see for example, ATP Read Errors) and messages will display on the white scroll bar.

If after initial evb initialization the buttons of certain seb/atp are red try clicking on them to reinitialize them individually . If that doent work contact the daq expert

**Event Builder Gui**

Event Builder Control Center

Threaded Control
○ Serialized  ● Threaded

Developer Control
○ Developer  ● Production

IT Admin Control
○ Off  ○ Re-register allways  ● Re-register when needed

CORBA Time Out Control
○ Disable  ● Enable

ATM Configuration Control
○ Never  ○ Always  ● When Needed

None

Data Logging Control
Reset Buffer Boxes
● Enable  ○ Disable
● phnxbox4.phenix.bnl...

EVBServer is OK, init time: 4:46

Level 2 Control
○ Enable  ● Disable
Configure Level2

Version Control
○ Normal  ● Debugging
Current Version:        v4_2
Set version to   v4_2

Full EVB Reset

Full SER Reset

○ Hard Reset    ● Soft Reset

Full ATP Reset          Full EBC Reset

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SEB.GL1 | seb0 | SEB.ERT.E | seb3 | ATP.0 | atp0 | ATP.1 | atp1 | EBC.0 ebc0 |
| SEB.ERT.W | seb4 | SEB.PC.E.0 | seb5 | ATP.2 | atp2 | ATP.3 | atp3 | |
| SEB.PC.W.0 | seb6 | SEB.DC.W.0 | seb7 | ATP.4 | atp4 | ATP.5 | atp5 | |
| SEB.DC.W.1 | seb8 | SEB.ZDC.0 | seb9 | ATP.6 | atp6 | ATP.7 | atp7 | |
| SEB.BB.0 | seba | SEB.DC.E.0 | sebb | ATP.8 | atp8 | ATP.9 | atp9 | |
| SEB.DC.E.1 | sebc | SEB.TOF.E.0 | sebd | ATP.A | atpa | ATP.B | atpb | |
| SEB.RICH.W.0 | sebf | SEB.RICH.E.0 | sebe | ATP.C | atpc | ATP.D | atpd | |
| SEB.TEC.E.0 | seb19 | SEB.TEC.E.1 | seb1a | ATP.E | atpe | ATP.F | atpf | |
| SEB.TEC.E.2 | seb1b | SEB.TEC.E.3 | seb1c | ATP.10 | atp10 | ATP.11 | atp11 | |
| SEB.TEC.E.4 | seb1d | SEB.TEC.E.5 | seb1e | ATP.12 | atp12 | ATP.13 | atp13 | |
| SEB.EMC.W.B | seb12 | SEB.EMC.W.T | seb13 | ATP.14 | atp14 | ATP.15 | atp15 | |
| SEB.EMC.E.B.0 | seb10 | SEB.EMC.E.B.1 | seb11 | | | | | |
| SEB.EMC.E.T | seb14 | SEB.MUTR.S.ST1.0 | seb15 | | | | | |
| SEB.MUTR.S.ST2.0 | seb16 | SEB.MUTR.S.ST3.0 | seb17 | | | | | |
| SEB.MUTR.S.ST3.1 | seb18 | SEB.MUTR.N.ST1.0 | seb22 | | | | | |
| SEB.MUTR.N.ST2.0 | seb23 | SEB.MUTR.N.ST3.0 | seb25 | | | | | |
| SEB.MUTR.N.ST3.1 | seb26 | SEB.FCAL | seb27 | | | | | |
| SEB.MUID.S | seb1 | SEB.MUID.N | seb2 | | | | | |

Initialize EVB

Tailing /export/software/oncs/log/EvBServer.log
EBCObject::StartQ
Issuing an EBC start run with part# = 1 run # = 64656 PartGranMask 21e3ff6c
Setting CORBA Time Out to 1

**Terminal**
File  Edit  Settings  Help

seb0::EVB_MSG_ERROR_FLOW::SEVERE   SEB::checkGL1Packet
seb0::EVB_MSG_ERROR_FLOW::SEVERE   SEB::checkGL1Packet
seb0::EVB_MSG_ERROR_FLOW::SEVERE   SEB::checkGL1Packet
seb0::EVB_MSG_ERROR_FLOW::SEVERE   SEB::checkGL1Packet
seb0::EVB_MSG_ERROR_FLOW::WARNING  EvbSEBReceive:: rec
  previous event = 1
seb0::EVB_MSG_ERROR_FLOW::WARNING  COMP: 0 ERROR: 41 S
  timed out in level1 SEB
seb0::EVB_MSG_ERROR_FLOW::WARNING  COMP: 0 ERROR: 41 S
  timed out in level1 SEB
seb0::EVB_MSG_ERROR_FLOW::WARNING  COMP: 0 ERROR: 41 S
  timed out in level1 SEB
seb0::EVB_MSG_ERROR_FLOW::WARNING  COMP: 0 ERROR: 41 S
  timed out in level1 SEB

**Partition Server Gui**

Partition Server

Use GL1        Use EVB          Server Information
● on  ○ off   ● on  ○ off       Status        OK
         Verbose Mode
         ○ on  ● off

GL1 Partition Map               Stand Alone Partition Map
jh@phoncsb.phenix.bnl.gov  GL1   GL1    Free  GL1
sb@phoncsb.phenix.bnl.gov  Big   BB     Free  BB
                                ZDC    Free  ZDC
                                DC.W   Free  MVD
                                PC.W   Free  DC.W
                                RICH.W Free  PC.W
                                EMC.W.B Free RICH.W
                                EMC.W.T Free ERT.W
                                DC.E   Free  DC.E
                                PC.E   Free  PC.E
                                TEC.E  Free  TEC.E
                                TOF.E  Free  RICH.E
                                RICH.E Free  EMC.W.B
                                EMC.E.T Free EMC.W.T
                                EMC.E.B Free EMC.E.B
                                MUID.N Free  EMC.E.T
                                ERT.E  Free  TOF.E
                                ERT.W  Free  ERT.E
                                FCAL   Free  MUTR.S
                                MUID.S Free  MUID.S
Free                    MUTr  MUTR.S Free  GL1TEST
                              MUTR.N Free  MUTR.N
                                     Free  MUID.N
                                     Free  EMC.TB
                                     Free  FCAL

Update Status

Tailing /export/software/oncs/log/PartitionServer.log
Registering Run Control Reference for Partition MUTr index #2 Partition Typ
PartitionServerNoORB::getPartition(MUTr)
PartitionServerNoORB::getTriggerList(2)
PartitionServerNoORB::getTriggerList(2)

# Global Level 1 Run Control

- On the ONCS Menu, select "Run Control". Type your name in the prompt for the name. The name will appear in the label for run control window.
- Select "GL1" from the pop-up window. A run control window will now appear, with the name "Run Control for GL1 Owned by …". All the run control commands for this window will appear in the upper left-hand corner of the window.
- In this menu, under "Mode", select "Evb Enable".
- Select the "Download" button. This will take approximately one minute.



- If everything is set properly, you should start to see the EVB Status counters increasing. This is where the mean event rate is displayed.
- The trigger status at the bottom should say "Enabled" with raw, live, etc. trigger rates displayed as non-zero entries.

# Big Partition Run Control

- On the ONCS Menu, select "Run Control". Type your name in the prompt for the name. The name will appear in the label for run control window.

- Select "Big" from the pop-up window. A run control window will now appear, with the name "Run Control for BigRun3 Owned by …". All the run control commands for this window will appear in the upper left-hand corner of the window.

- In this menu, under "Mode", select "Evb Enable". Then select "Select Trigger Manually" according to the SL instructions on which triggers to run.

- Select the "Download" button. This will take approximately one minute. Monitor the crate windows on the PHONCS C terminal during this procedure for any error messages. Now press "Start". A window will appear. Choose "Physics".
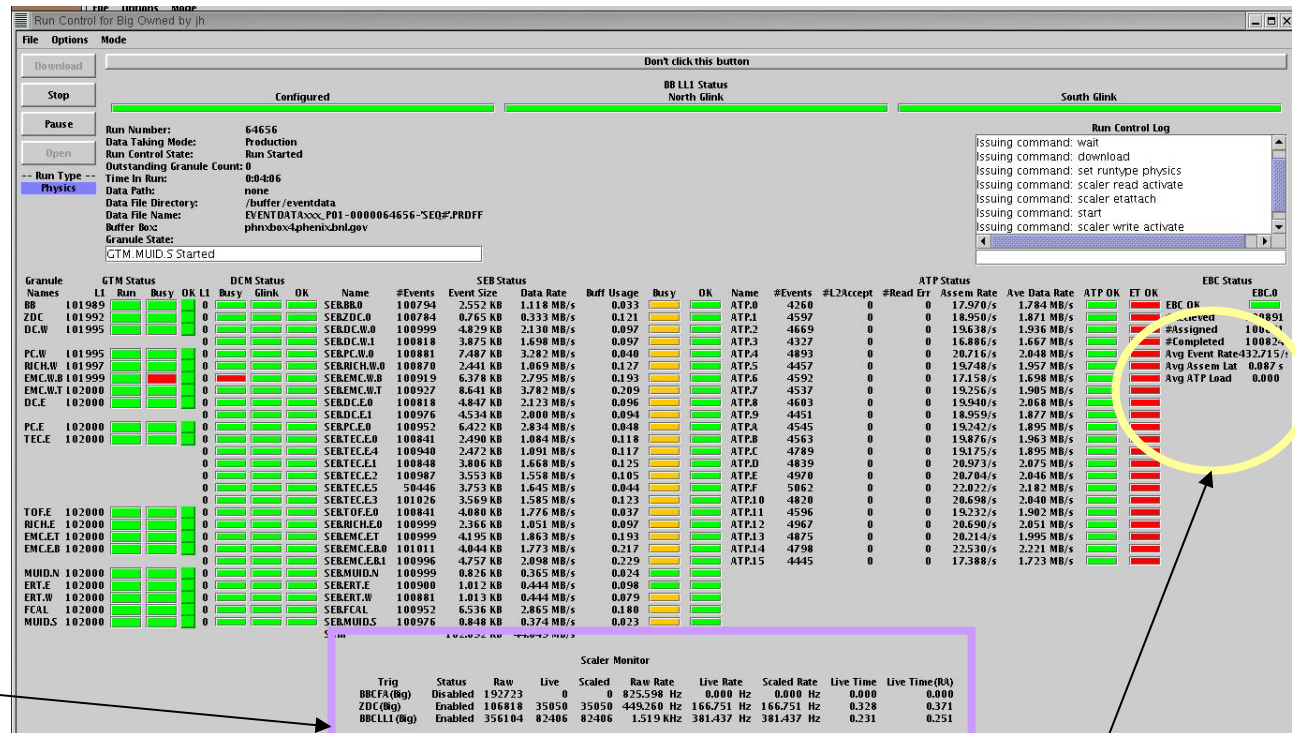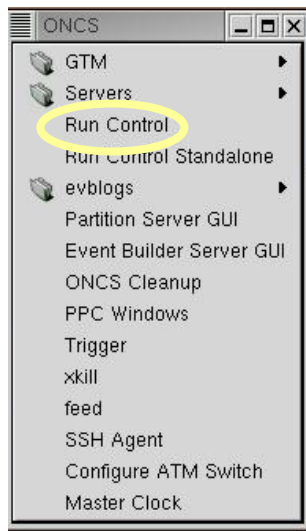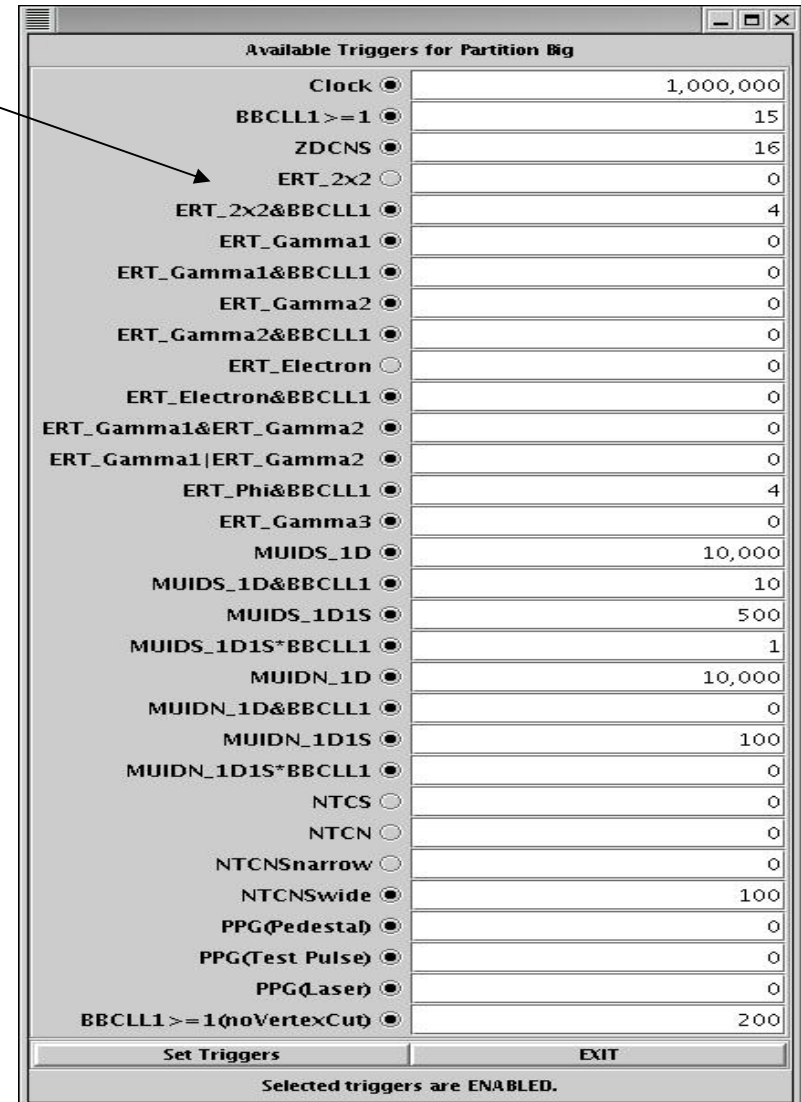


The trigger status at the bottom should say "Enabled" with raw, live, etc. trigger rates displayed as non-zero entries.

If everything is set properly, you should start to see the EVB Status counters increasing. This is where the mean event rate is displayed.

# Big Partition Run Control

- The Trigger settings, scalar values, Scalar monitor should be checked. To do this click at Config. readout and Trigger Settings from rc (check standing orders with SL)

- Save the settings in the log book. The command for capturing a window is:

"gimp", then choose

"acquire"-> "screen shot ->"single screen"

Right-click on the window you want to capture and save.

| Available Triggers for Partition Big | |
|---|---|
| Clock | 1,000,000 |
| BBCLL1>=1 | 15 |
| ZDCNS | 16 |
| ERT_2x2 | 0 |
| ERT_2x2&BBCLL1 | 4 |
| ERT_Gamma1 | 0 |
| ERT_Gamma1&BBCLL1 | 0 |
| ERT_Gamma2 | 0 |
| ERT_Gamma2&BBCLL1 | 0 |
| ERT_Electron | 0 |
| ERT_Electron&BBCLL1 | 0 |
| ERT_Gamma1&ERT_Gamma2 | 0 |
| ERT_Gamma1\|ERT_Gamma2 | 0 |
| ERT_Phi&BBCLL1 | 4 |
| ERT_Gamma3 | 0 |
| MUIDS_1D | 10,000 |
| MUIDS_1D&BBCLL1 | 10 |
| MUIDS_1D1S | 500 |
| MUIDS_1D1S*BBCLL1 | 1 |
| MUIDN_1D | 10,000 |
| MUIDN_1D&BBCLL1 | 0 |
| MUIDN_1D1S | 100 |
| MUIDN_1D1S*BBCLL1 | 0 |
| NTCS | 0 |
| NTCN | 0 |
| NTCNSnarrow | 0 |
| NTCNSwide | 100 |
| PPG(Pedestal) | 0 |
| PPG(Test Pulse) | 0 |
| PPG(Laser) | 0 |
| BBCLL1>=1(noVertexCut) | 200 |
| Set Triggers | EXIT |
| Selected triggers are ENABLED. | |

# ATP Read Errors

- Monitor the "ATP Status"-"Read Err" column. This column should all read "0".

- If there are numbers, indicating errors, then we must stop the run.

- It may be that the FEED step needs to be repeated for a given subsystem. All subsystems should receive the same number of events, so scan through the column "#Events" and look for that subsystem that has a different event rate from the others. In the example case below, the TEC.E has a different event number. So, the FEED was run for the TEC alone after stopping the Big Partition Run Control.

# DAQ Monitor for the Run

- Look for GL1 and FEM CLK errors shown as red bars in the picture displayed.
- Make sure the Offline Shift Person monitors the DAQ Monitor for each run.
- If these occur for a given subsystem, and if the SL agrees, stop a run and select the button for the subsystem on the feed gui.
- The message "STOP THE DAQ" at the DAQ monitor means… you should stop the run